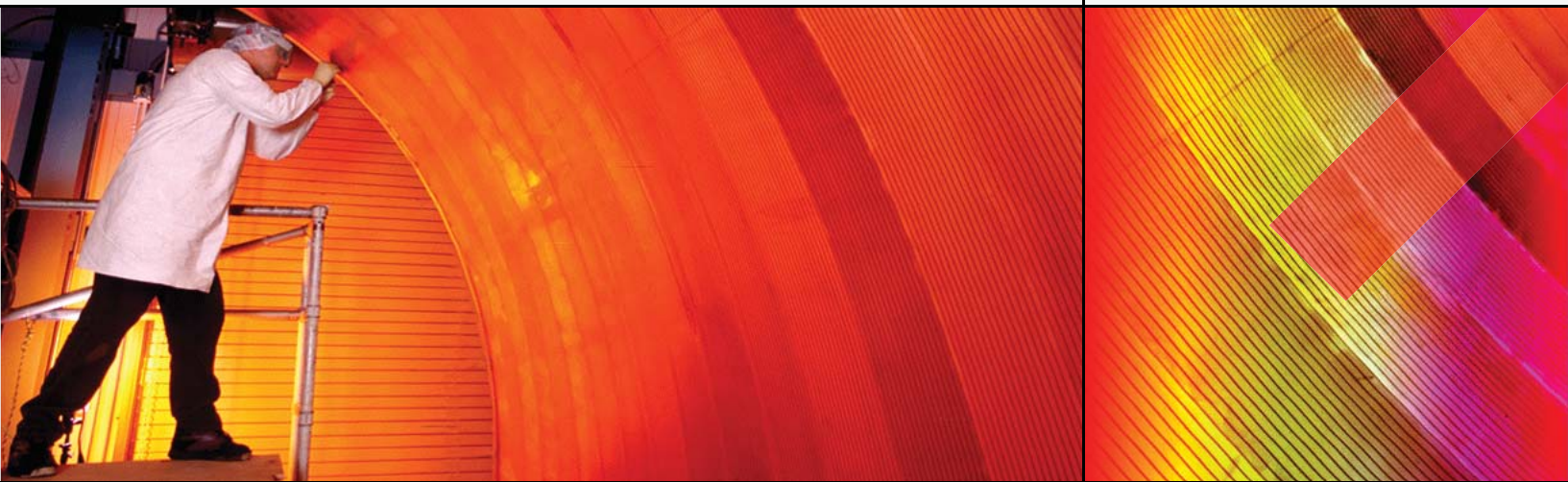


Porta  **SIP™**



Installation Guide

Maintenance Release 16

Copyright notice & disclaimers

Copyright © 2000-2008 PortaOne, Inc. All rights reserved

PortaSIP Installation Guide, April 2008
Maintenance Release 16
V1.16.3

Please address your comments and suggestions to: Sales Department,
PortaOne, Inc. Suite #400, 2963 Glen Drive, Coquitlam BC V3B 2P7
Canada.

Changes may be made periodically to the information in this publication. Such changes will be incorporated in new editions of the guide. The software described in this document is furnished under a license agreement, and may be used or copied only in accordance with the terms thereof. It is against the law to copy the software on any other medium, except as specifically provided in the license agreement. The licensee may make one copy of the software for backup purposes. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopied, recorded or otherwise, without the prior written permission of PortaOne Inc.

The software license and limited warranty for the accompanying products are set forth in the information packet supplied with the product, and are incorporated herein by this reference. If you cannot locate the software license, contact your PortaOne representative for a copy.

All product names mentioned in this manual are for identification purposes only, and are either trademarks or registered trademarks of their respective owners.

Table of Contents

Preface	3
1. Introduction	4
Hardware and Software Requirements	5
2. Installation Process.....	7
Step 1: Insert USB Dongle.....	8
Step 2: Power-up, Boot Order Setup	8
Step 3: Insert CD-ROM	9
Step 4: Launch Installation Process	9
Step 5: Welcome Screen	11
Step 6: Hardware Check.....	11
Step 7: STUN Feature and RADIUS Configuration – Parameters.....	12
Step 8: Network Configuration.....	13
Step 9: Time Zone Configuration	14
Step 10: Disk Partitioning - Overview.....	14
Step 11: Disk Partitioning - Choose Disk.....	14
Step 12: Disk Partitioning, Slice Layout.....	15
Step 13: Set Up Root Password and User Account	15
Step 14: Start Installation.....	16
Step 15: Installing Required Applications.....	16
Step 16: Prepare to Reboot.....	18
Step 17: Check If System Can Reboot to Normal State	19
Step 18: Prepare System for Transport (Optional).....	20

Preface

This document provides a general overview of the PortaSIP installation process.

Where to Get the Latest Version of This Guide

The hard copy of this guide is updated at major releases only, and does not always contain the latest material on enhancements occurring between minor releases. The online copy of this guide is always up to date, and integrates the latest changes to the product. You can access the latest copy of this guide at: www.portaone.com/support/documentation/

Conventions

This publication uses the following conventions:

- Commands and keywords are given in **boldface**
- Terminal sessions, console screens, or system file names are displayed
in fixed width font



Caution indicates that the described action might result in program malfunction or data loss.

NOTE: Notes contain helpful suggestions about or references to materials not contained in this manual.



Timesaver means that you can save time by performing the action described in the paragraph.



Tips provide information that might help you solve a problem.

1. Introduction

PortaBilling can potentially run on most modern UNIX operating systems, assuming these are equipped with such basic items as an ANSI C compiler. However, it might be difficult for an inexperienced system administrator to install and configure the operating system in such a way as to meet all the requirements and provide the best performance. Installing all the prerequisite software (libraries, Perl modules, SIP proxy server, B2BUA, RTP proxy etc.) might also be a time-consuming task, with a high risk of making some hard-to-trace error.

The PortaSIP JumpStart installation CD provides a quick and seamless way to perform a complete server installation from scratch, in less than 15 minutes. It contains installation media for FreeBSD 6.3, with all the necessary packages and PortaSIP itself. The standardized installation procedure also simplifies further system maintenance.

The installation wizard makes use of a text-mode GUI. Use the arrow keys to change your selection, **Tab** to move between fields, and **Enter** to confirm a choice.

Hardware and Software Requirements



NOTE: If you wish to perform testing to determine whether PortaSwitch can be installed on a specific server, please use the "Hardware Compatibility" CD provided by PortaOne.

You can download the CD image from:

http://portaone.com/resources/hw_test/HardwareCompatibilityCD.iso

Burn it to a CD using any CD-writing program, then boot up from this CD. The PortaSwitch test utility will detect if all of the required components (e.g. network interface) are available and supported by FreeBSD.

Recommended Configuration:

PortaSIP:

- CPU:
basic configuration: Pentium4 2.8GHz
advanced configuration: Pentium4 3GHz
- SCSI integrated or add-on hardware RAID controller compatible with FreeBSD 6.3
- RAM: 1GB
- Disks:
basic configuration: at least 50GB of the available disk space (RAID:

mirroring or RAID5)

advanced configuration: at least 80GB of the available disk space
(RAID: mirroring or RAID5)

- Network interface
- USB Port
- ATAPI or SCSI CD-ROM drive

Please check that the other hardware installed in your server (such as network adapter, RAID controller, and so on) is supported by FreeBSD. You can check this at the FreeBSD website: <http://www.freebsd.org>.

During installation you will be prompted for the network configuration parameters. Please make a decision regarding these before installation, consulting your network administrator if necessary. It is possible that you will have to perform installation while the network is not yet available (from your office, for example, while the servers will be placed in a server hosting center), but you will need to enter the correct data anyway. Please have the following ready:

- IP addresses of the PortaBilling100 master server
- PortaSIP IP address, subnet mask and address of the default gateway
- DNS server address

If you have a hardware RAID controller in your system, configure the RAID array. The recommended configurations (depending on the amount of hard drives in the system) are as follows:

- 2 disks – RAID (mirroring)
- 3 disks – RAID 1 (mirroring) on the first two disks, third one left as a hot spare

2. Installation Process

Step 1: Insert USB Dongle

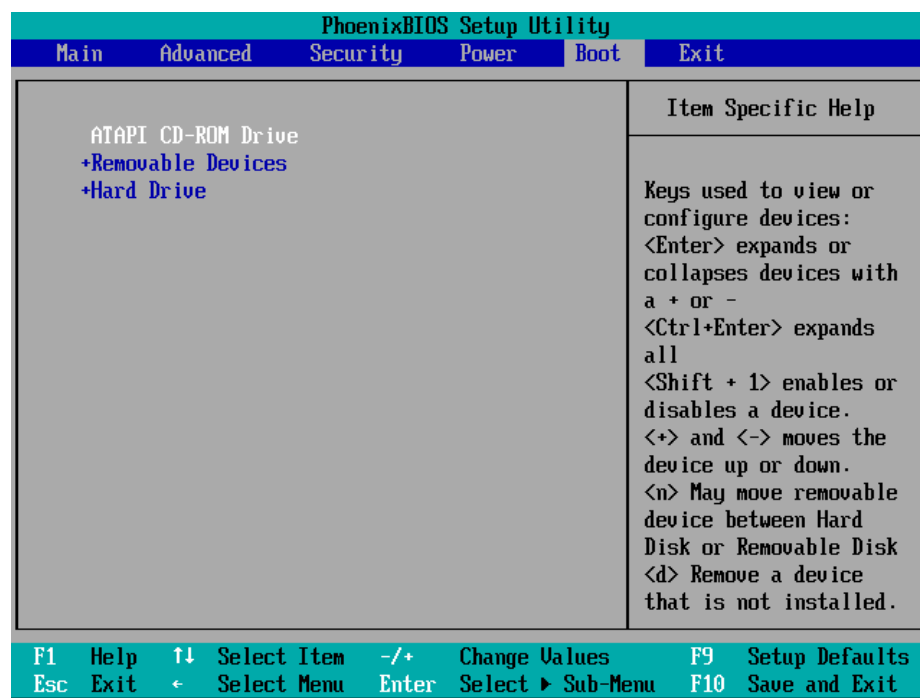
Before you start the installation, insert the USB dongle provided into one of the available USB ports. It must remain in place the whole time to ensure normal system operation.

Step 2: Power-up, Boot Order Setup

Turn on the computer which you plan to use as the server. Enter the BIOS setup and make sure that:

- the CD-ROM is first in the list of boot devices
- USB support is enabled

If you are installing a dual-server configuration, start your installation with the master server.



NOTE: This image is only an example. The BIOS on your system might look different.

Save your changes and exit.

Step 3: Insert CD-ROM

While rebooting the system, insert the PortaSIP installation CD into the CD-ROM drive. If you do not insert it soon enough and get a “no operating system” error (or a previously installed operating system starts its boot-up process) then press **Reset** and ensure that you are booting from the CD.

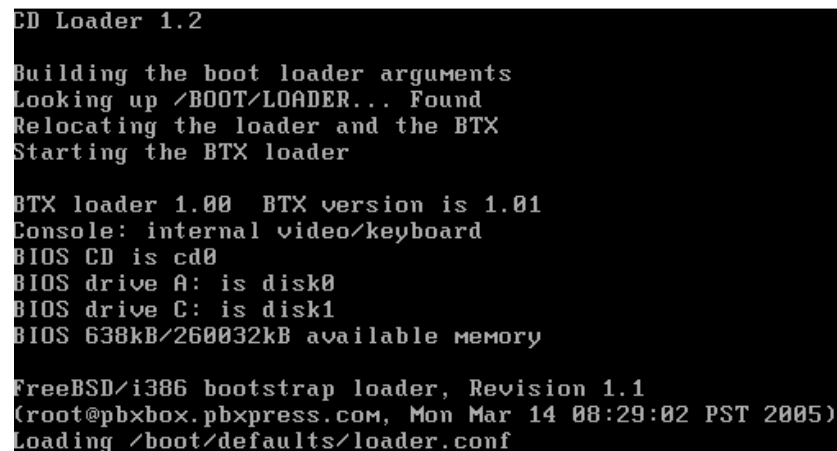
Step 4: Launch Installation Process

First, you will be asked to boot from the CD.



```
Press any key to boot from CD..._
```

You will know that JumpStart installation has begun if you see a screen similar to the following one:



```
CD Loader 1.2

Building the boot loader arguments
Looking up /BOOT/LOADER... Found
Relocating the loader and the BTX
Starting the BTX loader

BTX loader 1.00  BTX version is 1.01
Console: internal video/keyboard
BIOS CD is cd0
BIOS drive A: is disk0
BIOS drive C: is disk1
BIOS 638kB/260032kB available memory

FreeBSD/i386 bootstrap loader, Revision 1.1
(root@pbxbox.pbxpress.com, Mon Mar 14 08:29:02 PST 2005)
Loading /boot/defaults/loader.conf
=
```

Before proceeding any further, you will see the following screen:

```

Welcome to PortaOne Software installation program!

1. Proceed with PortaSIP Installation
2. Disable APIC
3. Disable ACPI
4. Enable USB keyboard support
5. Escape to the command line prompt (for advanced users)
6. Reboot

Press 1 or Enter to proceed with installation or [Space] to pause timer 8 _
```

If you select the first option, installation will start in default mode, which is suitable for most hardware configurations. However, in some cases, option 1 will return a device mounting error due to hardware conflicts. In this case, restart installation and, when you see this screen again, select options 2, 3 or both to enable/disable APIC/ACPI features.

For example, if you are installing to a computer with an ASUS P4VP-MX motherboard, you must disable APIC. In this case, select 2 on the screen above. You will then be shown the disabled features and asked to press 1 or Enter to proceed, as shown in the screen below:

```

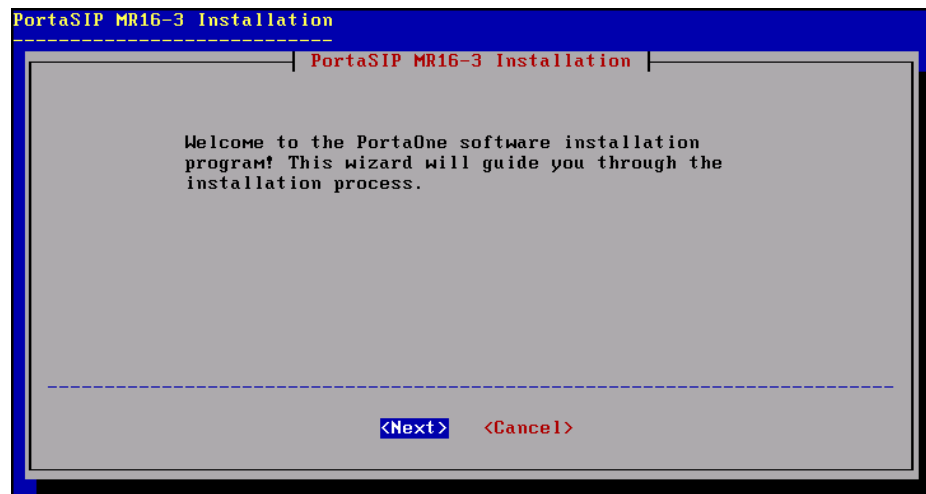
Welcome to PortaOne Software installation program!

1. Proceed with PortaSIP Installation
2. Enable APIC
3. Disable ACPI
4. Enable USB keyboard support
5. Escape to the command line prompt (for advanced users)
6. Reboot

Press 1 or Enter to proceed with installation
APIC disabled
```

Step 5: Welcome Screen

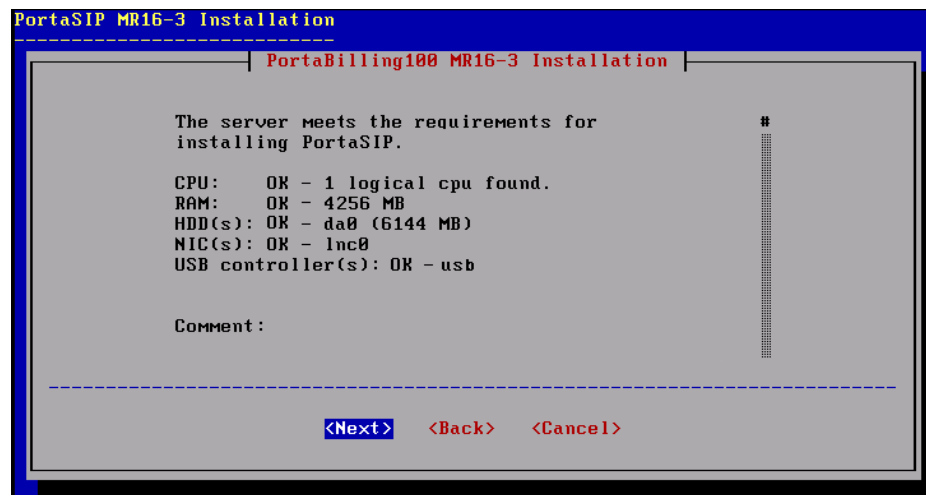
Next, the installation process starts. First you will see the PortaSIP welcome screen:



Press **Enter** to continue.

Step 6: Hardware Check

Next, the system will check your server's hardware components, such as CPU, memory, network card and USB controller.



If the hardware test detects a failure, an output message is generated indicating what exactly went wrong when failure occurred.

Step 7: STUN Feature and RADIUS Configuration – Parameters

If you set the STUN feature, you should have two IP addresses ready for network configuration. You can set the checkbox for the STUN feature using the space bar.

Parameter	Description
RADIUS server	IP address of the PB100 master host.
RADIUS secret	Authentication key for all radius interactions; select a password and write it down, as you will need to enter it later when adding the PortaSIP node to your PB100 system.
RADIUS auth port	Number of the UDP port on which your PortaBilling100 accepts authorization requests.
RADIUS acct port	Number of the UDP port on which your PortaBilling100 accepts accounting requests.
RADIUS retransmission interval	Number of seconds to wait for a reply before retransmitting a RADIUS request.
RADIUS retransmission count	Maximum number of retransmissions.



NOTE: Only RADIUS server and RADIUS key are mandatory parameters. You can simply leave the default values for the last four parameters.

PortaSIP MR16-3 Installation

PortaSwitch Features

PortaBilling100 Master IP: 10.0.0.1
PortaBilling100 Slave IP: 10.0.0.2

Enable STUN (requires 2 public IP addresses): ☐

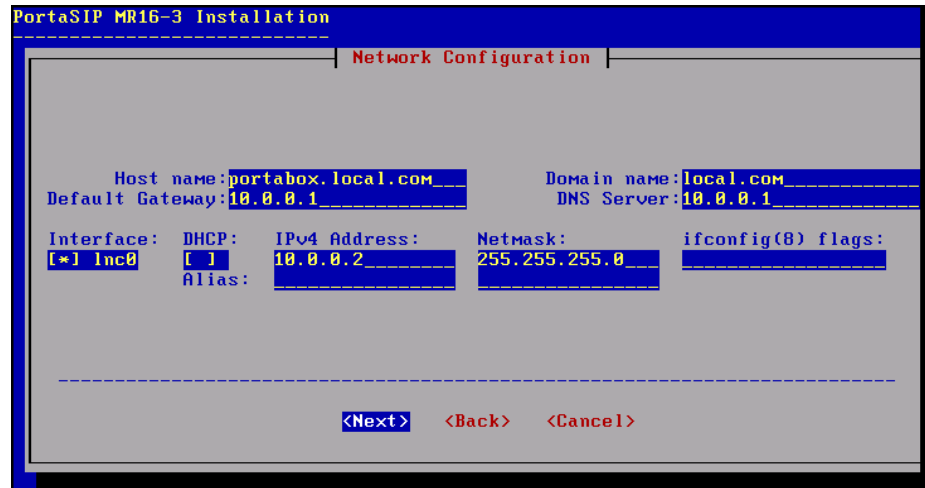
Usually, PortaBilling100 Master Server is your RADIUS server.

RADIUS server:	RADIUS key:
10.0.0.1	topsecret
RADIUS auth port:	RADIUS acct port:
1812	1813
RADIUS retransmission interval:	RADIUS retransmission count:
10	3

<Next> <Back> <Cancel>

Step 8: Network Configuration

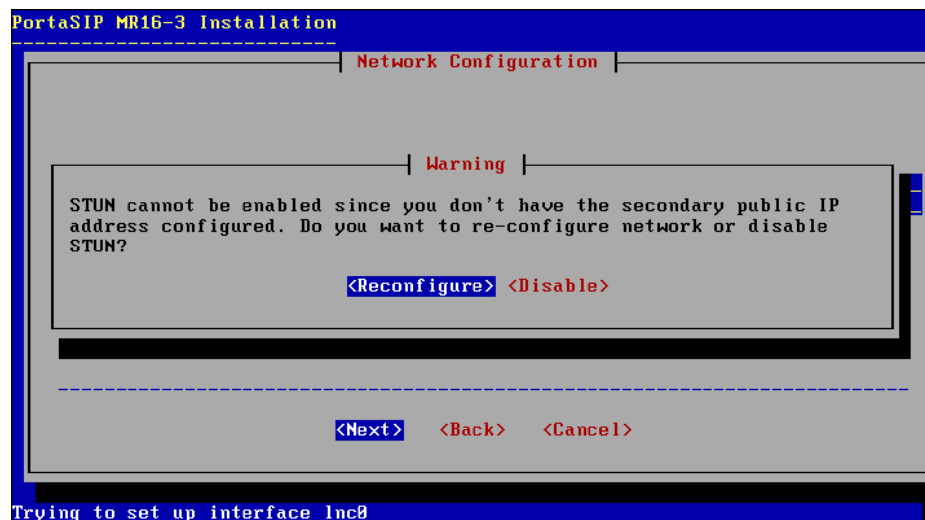
Fill in the appropriate fields for network configuration in this menu.



The screenshot shows the 'Network Configuration' window of the 'PortaSIP MR16-3 Installation' utility. The window has a blue title bar and a grey background. It contains several input fields for network settings. At the top, there are fields for 'Host name' (set to 'portabox.local.com'), 'Domain name' (set to 'local.com'), 'Default Gateway' (set to '10.0.0.1'), and 'DNS Server' (set to '10.0.0.1'). Below these, there are fields for 'Interface' (set to 'Inc0'), 'DHCP' (set to '1'), 'IPv4 Address' (set to '10.0.0.2'), 'NetMask' (set to '255.255.255.0'), and 'ifconfig(8) flags'. At the bottom, there are three buttons: '<Next>', '<Back>', and '<Cancel>'.

Use the space bar to set the check box for Interfaces and DHCP. Use the Tab key to proceed to the next field. If you have multiple interfaces, set at least one of the interfaces on which your machine connects to the Internet. If you do not use DHCP, unset this box. You can leave the alias and ifconfig(8) flags field empty.

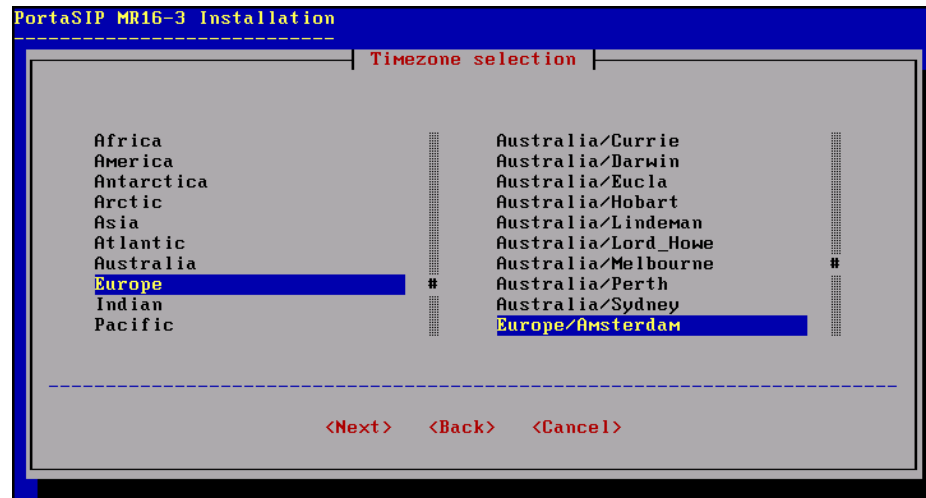
However, if you set the STUN feature in the previous screen, you must fill in the alias IP field for the selected interface, or choose a secondary interface and fill in the IPv4 address for it. If you fail to do so, you will be prompted to reconfigure the network as shown below:



The screenshot shows the 'Network Configuration' window of the 'PortaSIP MR16-3 Installation' utility. The window has a blue title bar and a grey background. A warning message is displayed in the center: 'Warning: STUN cannot be enabled since you don't have the secondary public IP address configured. Do you want to re-configure network or disable STUN?'. Below the message are two buttons: '<Reconfigure>' and '<Disable>'. At the bottom, there are three buttons: '<Next>', '<Back>', and '<Cancel>'. The status bar at the bottom of the window reads 'Trying to set up interface Inc0'.

Step 9: Time Zone Configuration

Proper adjustment of your clock and time zone is essential in order to achieve accurate billing. Usually people choose the time zone where the server is physically located, or the one which is local to the majority of system administrators.



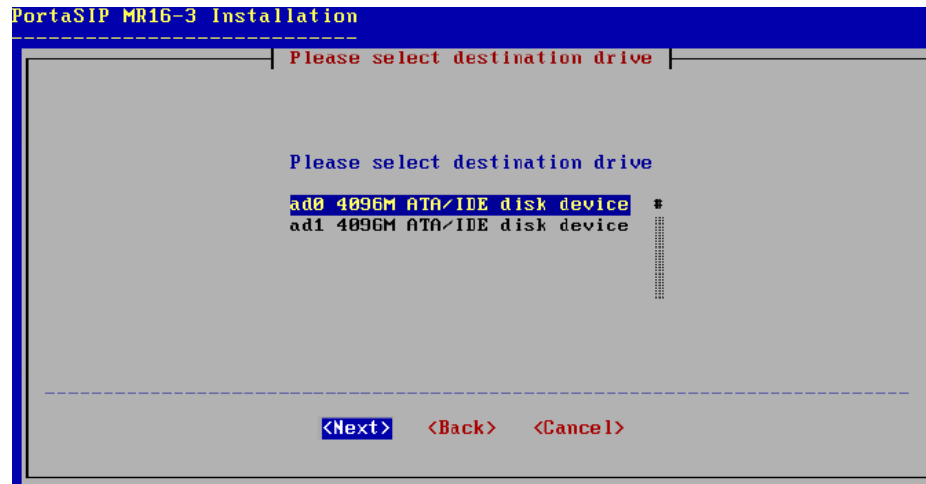
Step 10: Disk Partitioning - Overview

Now you must allocate the hard drive partitions where FreeBSD and PortaSIP will be installed. If you have only one hard drive in your system, or have configured your available disks as a single volume array, go to step 12 directly. Otherwise, choose the designated disk in step 11.

Step 11: Disk Partitioning - Choose Disk

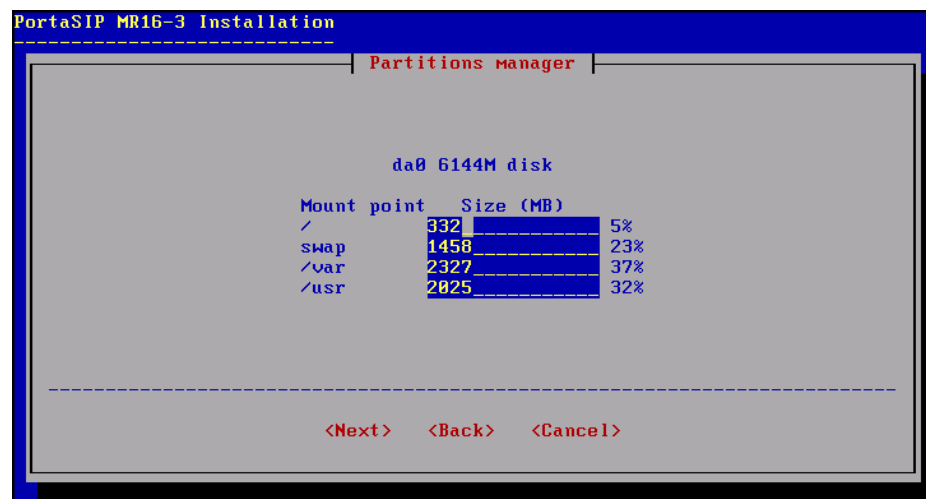
If you have more than one disk in your system, you will have to choose which disk you would like to create the FreeBSD partitions on. If in doubt, choose the first disk in the list.

NOTE: Installation is always performed on a single disk. If you want to utilize multiple drives (e.g. install the DB on a separate disk), this can be done after installation.



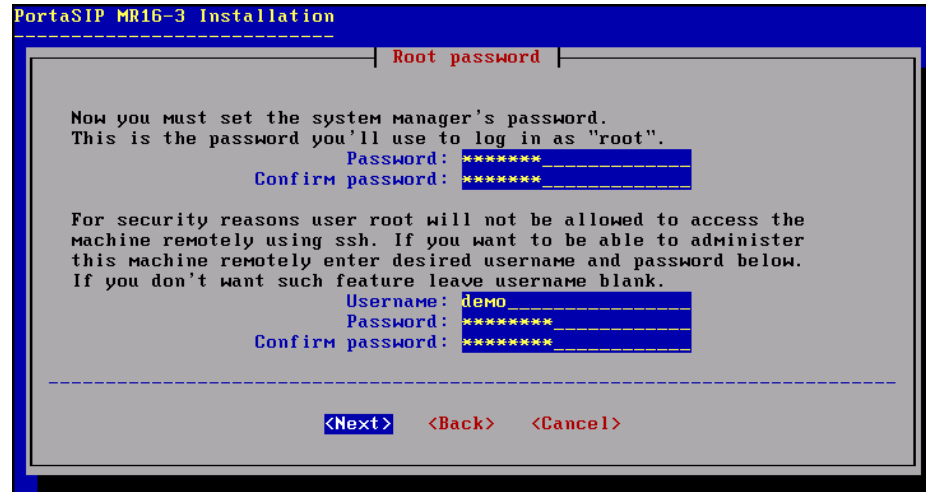
Step 12: Disk Partitioning, Slice Layout

You will be prompted to enter or choose the slice sizes for holding different file systems. The default settings are OK in most cases.



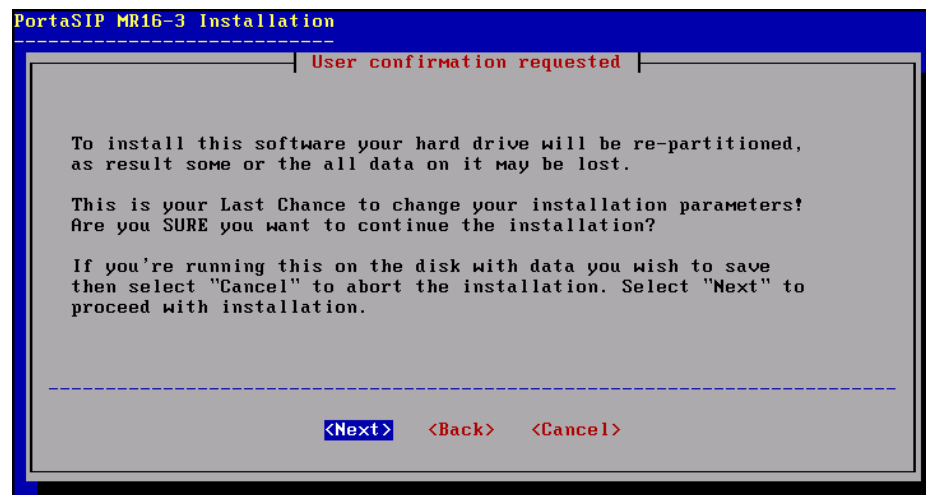
Step 13: Set Up Root Password and User Account

Choosing the super user password is very important, as you will need it to perform system administration or system recovery. Choose a password which is difficult to guess or crack. Add another user account especially for remote administration.



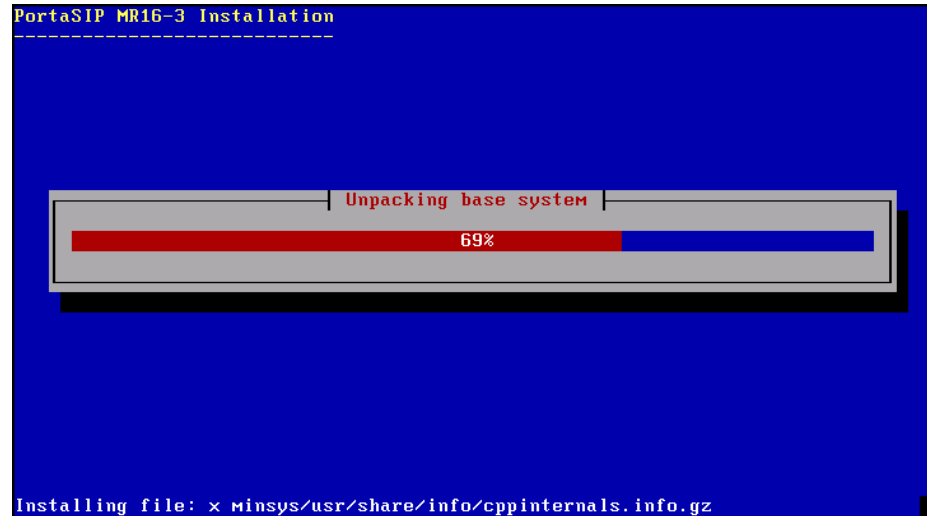
Step 14: Start Installation

Your confirmation is required before the disk layout is changed and the partitions reformatted. Press **Enter** to proceed.

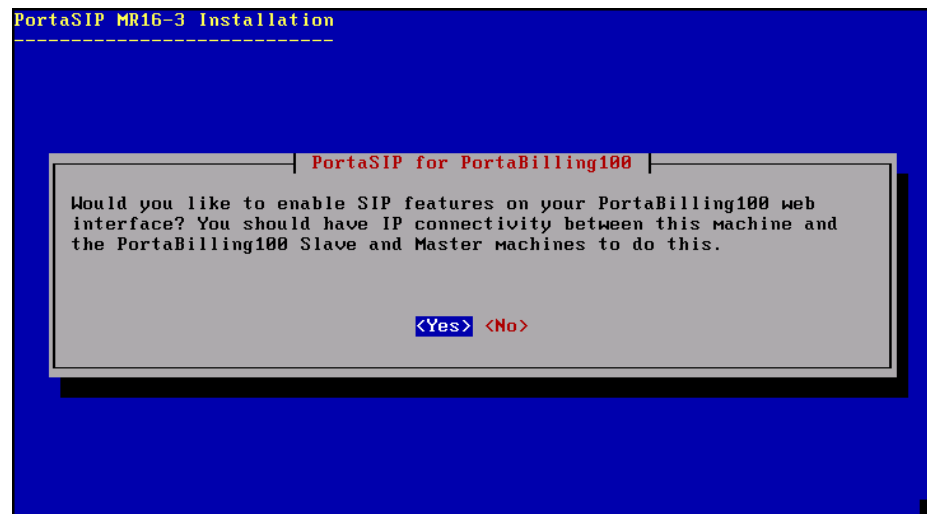


Step 15: Installing Required Applications

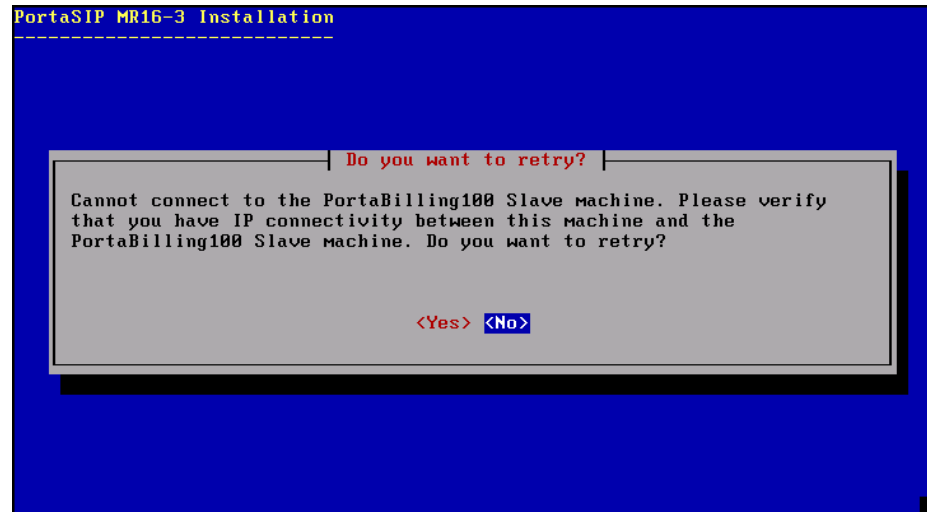
When installation starts, you will see a screen similar to the one below. At this step, the installation program will install all the required third-party applications, such as MySQL client and PortaSIP software. This step may take 5-10 minutes.



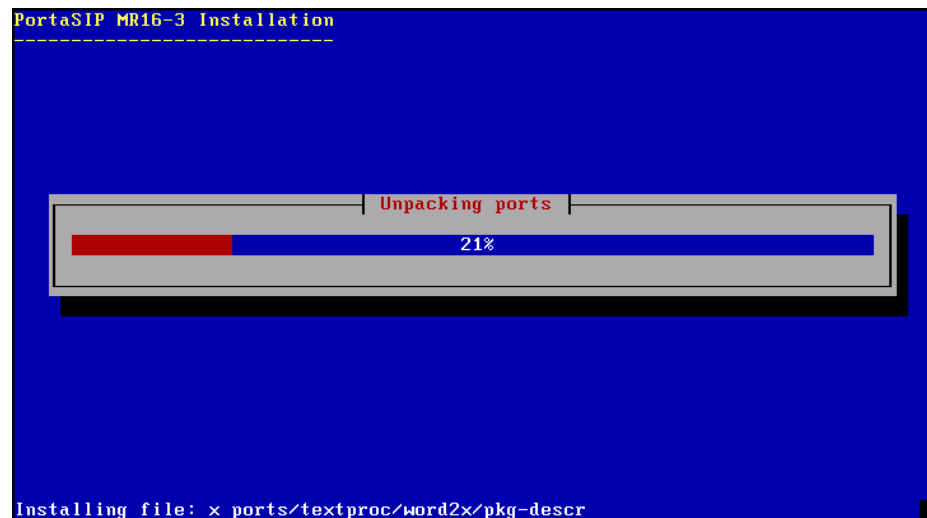
During installation you will be asked to enable SIP features on your PortaBilling web interface.



If you select **Yes** on the screen above and do not have IP connectivity to the PortaBilling slave machine, you will be prompted by the following screen. Choose **No** to proceed if you do not have such connectivity.

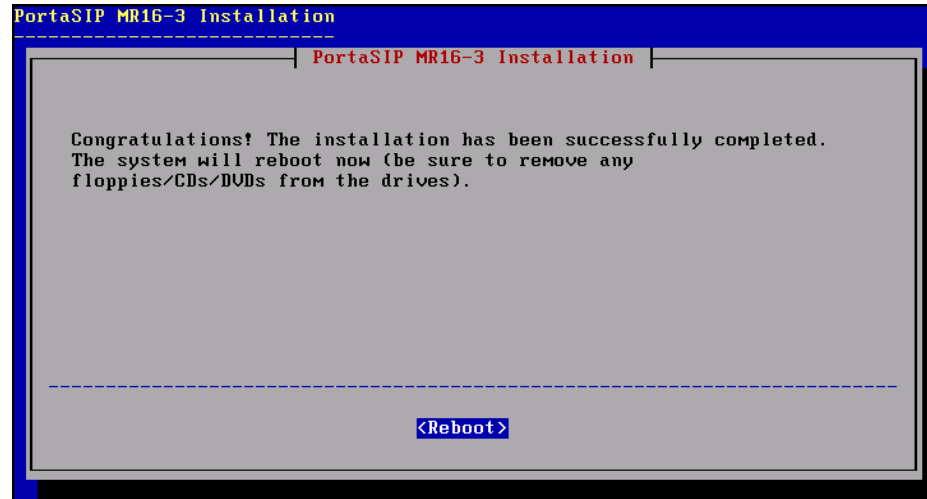


The installation continues, and you may follow its progress:



Step 16: Prepare to Reboot

When installation has finished and you reach the following screen, press **Reboot**. After the system has begun its reboot process, remove the installation CD from the CD-ROM.



NOTE: Do not forget to enter BIOS again and change the priority of the boot devices so that the hard drive will be attempted first. (This ensures a quicker reboot when recycling the server.)

Step 17: Check If System Can Reboot to Normal State

It is good to make sure that the system is in a stable state, and that it returns to normal operations without intervention on reboot, especially if there is no keyboard or other peripheral attached. Following a normal reboot, the screen should look like this:

```
9e:4f:64:05:e6:9b:b5:76:b5:83:54:e4:f4:82:16:d7 root@portabox.local.com
Generating public/private dsa key pair.
Your identification has been saved in /etc/ssh/ssh_host_dsa_key.
Your public key has been saved in /etc/ssh/ssh_host_dsa_key.pub.
The key fingerprint is:
b5:cd:08:73:47:69:db:98:63:24:d9:e3:6f:a0:4f:f6 root@portabox.local.com
Generating public/private rsa key pair.
Your identification has been saved in /etc/ssh/ssh_host_rsa_key.
Your public key has been saved in /etc/ssh/ssh_host_rsa_key.pub.
The key fingerprint is:
23:50:3c:c7:f2:a9:a8:e8:56:d7:56:19:de:f7:77:db root@portabox.local.com
Starting sshd.

Initial i386 initialization:.
Additional ABI support:.
Starting cron.
Local package initialization: PortaSIP[/var/sipenv-10.0.0.41.
Additional TCP options:.
Starting background file system checks in 60 seconds.

Thu Apr 27 04:32:05 PDT 2006

FreeBSD/i386 (portabox.local.com) (ttyv0)
login: |
```

Press **Ctrl + Alt + Del** if you need to reboot.

Step 18: Prepare System for Transport (Optional)

If you need to transport the system to another location (e.g. hosting center), or otherwise power down the system safely, proceed as follows:

- Wait until the system finishes booting
- Log in as `root`
- Type `shutdown -p now`
- Wait until either the system powers down on its own or the “The operating system has halted” message appears, and then power off the server.